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HYGIENE *IN* FOX FARMING



LEAFLET

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THE GREATEST obstacles that fox farmers have to overcome are losses of their animals, mainly from contagious diseases. It is possible to prevent a considerable number of diseases by establishing and maintaining conditions most conducive to health. Cleanliness and rational methods of management are marks of the good rancher and successful fox raiser and aid in keeping foxes in health and vigor. No attempt is made in this leaflet to discuss diseases of foxes or their treatment, but attention is merely called to some simple measures of hygiene and sanitation that may be used to advantage by any fox farmer. Information is given on the following phases of the subject:

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HYGIENE IN FOX FARMING¹

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HYGIENE in fox farming involves the establishment of conditions most conducive to good health, with attention centered not so much on curing disease as on removing some of its causes.

The prevention of diseases on fox farms is of importance not only because many ailments of foxes are preventable but also because

Prevention Is curative treatment is less successful with foxes than with most domestic animals. One of the
Better Than Cure factors that make attempts to cure foxes unsatisfactory is that frequently the sick animals

show no apparent symptoms of disease until after their condition becomes serious. This inclination to hide symptoms often precludes an early and accurate diagnosis, without which intelligent treatment is impossible. Consequently, it is important that fox ranchers keep always in mind that it is better to try to prevent diseases than to attempt to cure them.

THE QUALITY of fur produced on a fox farm is closely related to the climate. A cool or cold climate with a moderate rainfall, principally in the spring, is conducive to the production

Climate, Shade, of fur of high quality. A fairly deep snow throughout the winter helps to control most of the common
and Soil parasites of ranch-raised foxes. Hot summers are

not detrimental if short and followed by a period of frosty weather, a time during which the animals can renew their coats.

Both shade and sunshine are necessary for the comfort and health of the animals. Every animal likes to lie in the shade during extremely hot weather to escape the direct rays of the sun. Sunshine, on the other hand, is the best natural disinfectant for helping to keep the dens, pens, and grounds sanitary.

FOXES can be raised on any type of soil that is well drained and capable of producing some shade. Fox farms have been located on

Location of various kinds of soil, ranging from a sand to a heavy
the Farm clay and with or without an outcropping of rocks and gravel. Any of these types, if the surface is not too

rough, is adapted to the purpose. The land on which the pens and other buildings are erected should be well drained, as poorly drained land favors the development of bacteria and parasites. Parasitic and bacterial diseases are commonly spread by surface water draining from one pen to another. This can be prevented by digging drainage ditches around every pen and by placing enough soil in each pen to make its surface higher than that of the surrounding ground. Crowning this surface will also tend to make the pen more nearly self-cleaning when washed by rain or melting snow.

¹ Detailed information on sanitation and the treatment of diseases and parasites of foxes may be found in the following publication, which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents a copy: ASHBROOK, F. G., SILVER-FOX FARMING, U. S. Dept. Agr. Bul. 1151, 60 p., illus. 1923.

Copies of the following leaflets may be obtained free if a request is sent to the Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D. C.: HANSON, K. B., LUNGWORM TROUBLE IN FOXES—ITS TREATMENT AND CONTROL. U. S. Dept. Agr., Bur. Biol. Survey Leaflet Bi-1010, 5 p., 1929; and EAR MANGE IN FOXES: ITS TREATMENT AND ERADICATION, Leaflet Bi-1053, 2 p., 1929. [Mimeographed.]

To LESSEN the chances of spreading disease, pens should be placed 10 feet or more apart. Units of 25 or 50 pens are much safer than 100 or more within the same guard fence, for smaller Pens and units decrease the chances of infection and greatly aid Kennels in combating outbreaks of disease. Comparatively large pens are desirable, as small ones prevent the animals from taking proper exercise and invite contamination of the soil. Refuse



FIGURE 1.—Team and crew of men removing soil from a fox-breeding pen. The contaminated soil is replaced with clean soil

should not be allowed to accumulate in the pens, but should be picked up at frequent intervals and burned. Droppings (manure) are potentially dangerous because they frequently contain worm eggs and disease germs and should be collected every day and safely disposed of.

If pens are not to become a troublesome source of parasitic and infectious diseases, they should be so constructed that the soil can be readily removed and new soil put in its place. It is good practice to change the soil in breeding pens at least once a year. (Fig. 1.) If small pens are of a knockdown type, they can be easily cleaned and moved to new soil, but if of permanent construction, on wood or concrete floors, they should be washed frequently with water from a hose.

To facilitate cleaning and disinfecting, it is preferable to have dens, or kennels, located outside the pens at the end opposite to that where the animals are fed. (Fig. 2.) The dens should be made comfortable and should be properly insulated to prevent the young from becoming chilled. Both dens and nest boxes should be so constructed that they can be readily taken apart and thoroughly cleaned, disinfected, and aired at least once a month.

MANY OUTBREAKS of disease on fox farms have resulted from careless feeding methods and the use of spoiled feeds. Food poisoning has been responsible for losses among old as well as young fur animals. The preventive for this is to use wholesome foods and to employ sanitary methods in preparing and dispensing the feed. Some of the troubles that may be attributed to dietary errors are rickets, convulsions, sore eyes, abortion, abandoning or killing the young by the vixen, failure of the young to make proper growth and development, insufficiency of milk supply, failure to reproduce, and imperfect development of fur. Proper feeding is essential to prevent nutritional diseases.

Feeding and drinking dishes should be clean, and the water supplied should be pure, cool, and fresh. After each meal all feeding utensils should be thoroughly washed and then sterilized in boiling water or in a steam cabinet, or by immersion in a suitable disinfectant, such as a hypochlorite solution of proper strength.



FIGURE 2.—Manure and other débris should be removed frequently from fox kennels

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Feeding should not be merely a mechanical process of dishing out food to the foxes, but rather a careful, painstaking task in which the requirements of each individual animal are provided for. (Fig. 3.) Foxes should be fed more sparingly during hot weather than when it is cold. They should be given fresh, cool water once daily during nonfreezing weather and on extremely hot days watered two or three times. Experience, good judgment, keen observation, close attention, and interest in the animals on the part of the rancher are required to feed foxes properly.

CONTAGIOUS diseases are caused by specific germs or viruses, which will produce disease whenever they gain access to susceptible subjects.

Preventing Contagious Diseases

They are much inclined to spread, and are usually difficult to cure and quite often result in a high mortality. When these diseases do not cause death, their injurious effects commonly leave the animals permanently impaired.

Every fox farm should be equipped with a group of quarantine or retention pens, which should be placed at least 15 feet apart and

several hundred feet from the main ranch and the feed room. There should be a sufficient number of pens to accommodate 10 to 20 per cent of the foxes on the ranch.

New stock should be quarantined and examined for infection of any kind and if necessary treated before being placed with healthy animals or in the breeding pens. Sick animals should always be isolated at once as a precautionary measure. Animals returning from shows or from other neighboring ranches should be kept separate from all others for at least three weeks. If they have been exposed to any disease, it will usually become apparent in that time.

The rancher should maintain a strict quarantine against any disease that breaks out in the neighborhood. As dogs and various other animals, as well as human beings, may carry infection from ranch to ranch, visits should be discouraged and trespass prevented so far as possible in order to guard against the spread of such diseases.



FIGURE 3.—Foxes should be fed wholesome food in dishes at regular intervals

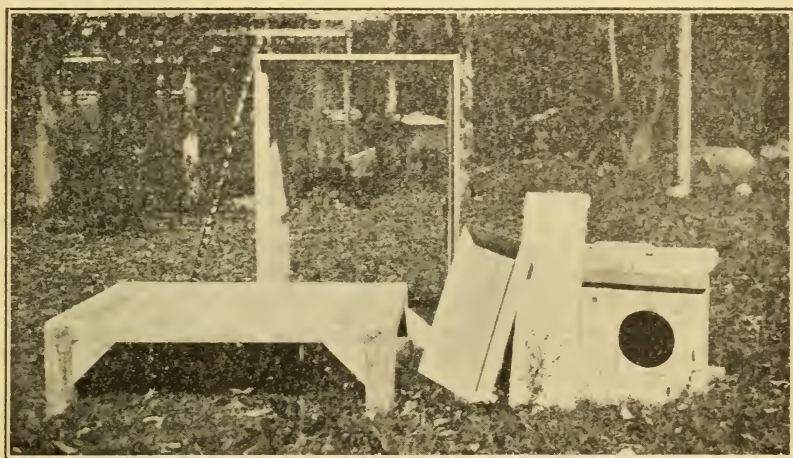
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Quarantined foxes should be kept under close observation for symptoms and should be thoroughly examined, preferably by a competent veterinarian, before they are released from quarantine and placed on the main part of the ranch. Animals that become sick while under quarantine should be promptly moved to an isolation hospital and placed under the treatment of a veterinarian. For other foxes that have been exposed to such animals, the quarantine should be made more rigid and extended at least another month. Pens in which any of these animals become sick should be thoroughly cleaned and then disinfected and left vacant as long as practicable.

It is advisable to have special attendants to care for sick foxes, and others for disease suspects. These men should keep away from the feed room, breeding pens, and healthy stock, and take all precautions to prevent spreading disease. The attendants caring for the well animals should, so far as possible, avoid going near the places where sick foxes and disease suspects are kept. When this plan is

impossible or impracticable, the caretaker or other attendants should always care for the healthy stock first, the disease suspects next, and the sick animals last. Special overshoes and outer garments should be worn while handling or working around sick foxes and disease suspects. Such clothing should be taken off and the hands and shoes disinfected before proceeding to the feed room or breeding pens. Feed taken to either the quarantine section or the hospital should be used there and not returned to the feed room or fed to healthy stock. Left-over feed from these animals should be burned or buried deep in the ground. A special set of feed pans, tongs, and other equipment should be provided for the quarantine section and another set for the hospital. None of this equipment should be removed from either place until it has been thoroughly disinfected.

Whenever there is the slightest doubt as to the cause of a fox's sickness or death, it is good policy to assume that the animal was



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FIGURE 4.—Kennels and dens of knockdown construction are easily cleaned and disinfected

affected with a contagious disease. This will tend to prevent any communicable disease from spreading or developing into an outbreak. The diseased animal should be immediately taken from the ranch and its pen mates promptly moved to the quarantine section and kept there for a month or more. The house and pen that the animal has occupied should be thoroughly cleaned and disinfected and then left empty for at least a month.

Sick or dead foxes should never be taken into the feed room. Dead foxes, especially those that have died of disease, should be skinned in out-of-the-way places and the carcasses completely burned. Instruments used in handling sick animals or in skinning should be promptly and thoroughly sterilized. Whenever foxes become sick, especially if a contagious disease is suspected, the fox farmer should promptly employ a competent veterinarian to investigate the trouble, to make a diagnosis, and to prescribe treatment and the most practicable control measures.

DISINFECTION is the process of destroying disease germs or rendering them harmless, and substances or agents that accomplish this are known as disinfectants. Disinfection operations usually consist of the mechanical removal and safe disposal of as much of the infectious matter as possible, followed by the destruction of such disease germs as may remain. The preliminary removal of infectious material, together with manure, litter, or refuse, is essential, not only because this organic matter interferes with the action of most disinfectants but also because disinfectants act only to a limited depth. (Fig. 4.)

Feeding and watering utensils are best disinfected by being washed thoroughly with warm soapy water, being rinsed, and then scalded in boiling water for 15 minutes or steamed in a closed tank for an hour or more, or immersed in a suitable disinfectant solution. Fox tongs, skinning knives, and similar equipment may be disinfected by the above method or by being washed in a warm, 3 per cent saponified cresol solution, or in the proper strength of some other effective coal-tar disinfectant. Feed and cook rooms can be disinfected by scrubbing the walls, floors, and tables with the solution.

A satisfactory method of disinfecting fox houses and nest boxes is as follows: First remove all manure, litter, and other débris and safely dispose of it, preferably by burning; then thoroughly scrub the houses and nest boxes with a 5 per cent solution of lye (sodium hydroxide) or washing soda (sodium carbonate), using a stiff brush and being sure to clean all corners and crevices; next rinse with clear water and spray with an effective coal-tar disinfectant solution; and finally dry the house either by flaming it with a torch or by leaving it open for several hours. Soaking the ground with a hot, 5 per cent saponified cresol solution or with some other effective coal-tar disinfectant and flaming thoroughly with a large torch are good methods of disinfecting the pens for bacterial organisms.

Fox carcasses, especially those of diseased animals, are most safely disposed of by completely burning them.

Clothing is best cleaned and disinfected by boiling in water. Rubber shoes and other articles that will not withstand soaking in hot water should be treated with some effective disinfectant, such as 3 per cent saponified cresol solution or a 4 per cent solution of formaldehyde.

